ROS MEEKER

NICKEL

Element Symbol: Ni
Atomic Number: 28

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Saxon miners were familiar with the reddish-coloured ore NiAs (Nickel Arsenide) which resembles Cu_2O (copper oxide). These miners attributed their inability to extract copper and the fact that the ore was making them ill was work of the devil and named the ore "Kupfernickel" (Old Nick's Copper), however it was the arsenic that was poisoning them. In 1751 Axel Frederik Cronstedt isolated an impure metal from some Swedish niccolite ore. He expected to extract copper but found none at all, instead extracting a silver-white metal which he named "nickel".

Nickel is mined from two types of ores: sulphides and laterites. The latter type of ore is cheaper to mine but more expensive to process requiring new pressure acid leaching technology. This is slightly offset with one of the by-products being valuable cobalt. Sulphide ores on the other hand are often associated with precious metals such as gold, platinum and palladium. Most nickel in Australia comes from WA, with some also mined in QLD.

Nickel was discovered in Australia in 1897, but mining didn't commence until 1966 at Kambalda, 50km south of Kalgoorlie, WA. The discovery caused a massive stock market boom for nickel mines, the best known being the "Poseidon Boom" where stocks rose from $1.85 on 26 September 1969 to $280 on 10 January 1970. A movie comedy "The Nickel Queen" was made in 1971 about the events of the time.

When nickel is mixed with other metals it makes alloys that are strong, are corrosion resistant and can stand both extremes of heat and cold.

- Nickel is used to make stainless steel and other corrosion resistant alloys
- Coinage - first used for coinage in Belgium in 1860, and has been widely used since then. Australian $1 and $2 coins contain 2% nickel (with 92% copper and 6% aluminium) and our 5c, 10c, 20c and 50c coins contain 25% nickel (with 75% copper).
- Armour plate and burglar-proof vaults
- Nickel added to glass gives a green colour
- Nickel plating is often used to provide a protective coating for other metals
- Rechargeable batteries (such as mobile phones) and fuel cells
- Electroplating
- Production of soaps and margarine (by assisting in converting natural oils to solids.

Nickel is found as a constituent in most meteorites and often serves as one of the criteria for distinguishing a meteorite from other minerals.

It is one of only 4 elements that are ferromagnetic at room temperature. The Canadian "nickel" 5 cent coin minted between 1922-1981 was 99.9% nickel and was magnetic. In the 19th century, nickel was popular for making items such as cutlery. However, it was in 1889 that James Riley gave an historic speech to the Iron and Steel Institute of Great Britain, declaring that tests had shown that a steel containing nickel gave the alloy almost unbelievable strength.

Provided by the element sponsor Annette Larwood

ARTISTS DESCRIPTION

This work was constructed from collaged elements, the resultant image etched onto a polymer plate, with overlaid information from open bite steel etching.

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